PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No.:	10/806,307
Filing Date:	March 22, 2004
Applicant:	Gregory A. Stobbs, et al.
Group Art Unit:	2162
Examiner:	Jean M. Corrielus
Title:	COMPUTER-IMPLEMENTED PATENT PORTFOLIO ANALYSIS METHOD AND APPARATUS
Attorney Docket:	9305-000002/DVA

Mail Stop Appeal Brief – Patents
Director of U.S. Patents and Trademarks
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APPEAL BRIEF

Sir:

Applicants hereby submit this Appeal Brief and include the fee for the Appeal Brief.

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I. REAL PARTIES IN INTEREST

The real parties in interest are the applicants, Gregory A. Stobbs and John V. Biernacki.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals and/or interferences currently pending that are known to appellants, and/or appellant's legal representative which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

For completeness, appellants would note that there was a prior appeal in the parent application S.N. 09/499,238. That appeal was taken on May 14, 2003, and was disposed of by the examiner's withdrawal of finality, mailed January 13, 2004 (paper No. 13).

III. STATUS OF CLAIMS

Claims 1-10 have been cancelled.

Claims 11-20 are presently pending in this application. Claims 11-20 stand rejected as follows:

Claims 11-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,038,561 to Snyder et al, and US 6,233,575 to Agrawal.

Claims 13-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,038,561 to Snyder et al, in view of US 6,233,575 to Agrawal and further in view of Andrew "Text classification by bootstrapping with keywords EM and Shrinkage." (Note that applicants are referring to the "Andrew" reference by the same name as used by the Examiner in the Office Action. The authors of the cited reference are: Andrew McCallum and Kamal Nigam; thus applicants believe the Examiner has chosen to identify this reference by the *first name* of the first-named author.)

IV. STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the final rejection, mailed October 19, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

CONCISE SUMMARY OF INDEPENDENT CLAIM 11:

Claim 11 recites a computer-implemented patent portfolio analysis method that includes the following steps:

"providing user-prescribed categories which were specified by the user" – this step is described at page 15, paragraph 0069 and shown in Fig. 6 as step 262.

"retreiving a corpus of patent information from a database, wherein the patent information is information from multiple patent documents" – this step is described at page 15, paragraph 0069 and shown in Fig. 6 as step 260.

"analyzing said patent information to generate a category label model corresponding to at least one of said user-prescribed categories" – this step is described at page 15, beginning at paragraph 0070 and continuing through page 17, paragraph 0068. The "analyzing" process is represented by steps 260 – 270 in Fig. 6. The model generating process is represented by step 272.

"applying said model against said patent information to select from said patent information a subset that fits said model and storing said associated label said subset in association with a label corresponding to

said at least one of said user-prescribed categories in a computer-readable dataset" – this step is described at page 17 paragraph 0079 and represented in Fig. 6 at 276.

CONCISE SUMMARY OF INDEPENDENT CLAIM 14:

Claim 14 recites a computer-implemented patent portfolio analysis method that includes the following steps:

"retrieving patent information from a database, wherein the patent information is from a plurality of patent documents" – this step is described at page 15 paragraph 0068 and 0069. In Figure 6, this step is represented at 260.

"analyzing said patent information to generate at least one eigenspace category model" – this step is described at page 15, beginning at paragraph 0070 and continuing through page 17, paragraph 0068. The "analyzing" process is represented by steps 260 – 270 in Fig. 6. The model generating process is represented by step 272.

"applying said category model to said patent information to select from said patent information a subset that fits said model and storing said subset in a computer-readable dataset" – this step is described at page 17, paragraph 0079. In Figure 6, the applying step is represented at 276, with the computer-readable datasets being represented in that figure as points A, B and C.

"wherein said patent information includes claim text information to be analyzed" – this recitation is described at page 15, paragraph 0069. In Fig. 6 the claim text is represented at 260.

and wherein said analyzing step includes:

"defining an eigenspace representing a training population of training claims each training claim having associated training text" – this step is described at page 15, paragraph 0070 through page 17, paragraph 0078. In Figure 6, this step is depicted by steps 260 – 272.

"representing at least a portion of said training claims in said eigenspace and associating a predefined category with each training claim in said eigenspace" – this step is described at page 17, paragraph 0079 and illustrated in Fig. 6 at 276.

"projecting the claim text information to be analyzed into said eigenspace and associating with said projected claim text the predefined category of the training claim to which it said projected claim text is closest within the eigenspace" – this step is described at page 17-18, paragraph 0080. It is illustrated in Fig. 6 at 278, with the projected claim text being represented as X in the eigenspace 276.

CONCISE SUMMARIES OF DEPENDENT CLAIMS

12. The method of claim 11 wherein said patent information includes patent classification information and wherein said analyzing step is performed by defining a plurality of categories and mapping classification information onto said categories. – the recitation of this dependent claim is described at pages 15, paragraph 0068 through page 18, paragraph 0080. In Figure 6, the defining of categories is depicted at 262; in addition, the mapping of classification information onto categories is further described at page 13, paragraph 0059 and illustrated at step 90 in Fig. 4.

13. The method of claim 11 wherein said patent information includes claim text information to be analyzed and wherein said analyzing step includes:

defining an eigenspace representing a training population of training claims each training claim having associated training text; -- – this step is described at page 15, paragraph 0070 through page 17, paragraph 0078. In Figure 6, this step is depicted by steps 260 – 272.

representing at least a portion of said training claims in said eigenspace and associating a predefined category with each training claim in said eigenspace; – this step is described at page 17, paragraph 0079 and illustrated in Fig. 6 at 276.

and projecting the claim text information to be analyzed into said eigenspace and associating with said projected claim text the predefined

category of the training claim to which said projected claim text is closest within the eigenspace.– this step is described at page 17-18, paragraph 0080. It is illustrated in Fig. 6 at 278, with the projected claim text being represented as X in the eigenspace 276.

15. The method of claim 14 wherein said patent information includes patent classification information and wherein said analyzing step is performed by defining a plurality of categories and mapping classification information onto said categories. – the recitation of this dependent claim is described at pages 15, paragraph 0068 through page 18, paragraph 0080. In Figure 6, the defining of categories is depicted at 262; in addition, the mapping of classification information onto categories is further described at page 13, paragraph 0059 and illustrated at step 90 in Fig. 4.

16. The method of claim 14 wherein said patent information includes using both patent classification information and linguistic analysis results to define said category model. – the recitation of this dependent claim is described at page 13, paragraph 0060 and illustrated in Fig. 4 at linguistic analysis step 88.

17. The method of claim 16 wherein the category model is indicative of technical areas of the patent documents. – the recitation of this claim is described at page 10, paragraph 0050.

18. The method of claim 14 further comprising:

retrieving text of claims from the database, wherein the text of claims are from the plurality of patent documents; – this step is described at page 15 paragraph 0068 and 0069. In Figure 6, this step is represented at 260.

analyzing the text of the claims in order to generate claim breadth metrics for the claims, wherein a claim breadth metric is indicative of claim breadth of a claim, -- this step is described at pages10, paragraph 0049; and pages 12, paragraph 0055 ; page 23 paragraphs 0098- 0099.

wherein the claim breadth metrics are used to analyze the claims. – this recitation is described at page 12, paragraph 0057, and at page 23, paragraph 0098.

19. The method of claim 14 wherein a label associated with the category model is predetermined. – this step is described in the specification at page 15, paragraph 0067, and at page 22, paragraph 0095.

20. The method of claim 14 wherein a label associated with the category model is dynamically determined. – this step is described in the specification at page 22, paragraphs 0095-0097.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Applicants' claims 13-20 have been improperly rejected over Snyder et al (6,038,561), in view of Agrawal (6,233,575) and further in view of Andrews "Text classification by bootstrapping with keywords EM and Shrinkage" where:

(as to claims 13 – 20) contrary to the Examiner's assertion, Andrews reference does not teach defining an eigenspace representing a training population of training claims...representing at least a portion of each training claim in said eigenspace... projecting the claim text information to be analyzed into said eigenspace and ... associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

GROUPING OF CLAIMS

In this Appeal Brief, Applicants have grouped the claims into one group in order to better organize the arguments:

Group 1 – Claims 13-20 of which claim 13 is representative

Applicants submit that claims 13-20 each represent patentably distinct inventions. However, recognizing the Board's need for judicial economy, Applicants submit that the claims on appeal may be grouped together into single group as follows for purposes of the 37 C.F.R. 1.192(c)(7) "Grouping of Claims" requirement:

Group I – Claims containing recitation of:

defining an eigenspace representing a training population of training claims...representing at least a portion of each training claim in said eigenspace... projecting the claim text information to be analyzed into said eigenspace and ... associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

Claims in this group include independent claims 13-20

VII. ARGUMENT

APPLICANTS' INVENTION:

The Applicants' invention is designed to make it easier to analyze a portfolio of patents, where it would be helpful to be able to automatically categorize patents into different groups. The applicants recognize that the Patent Office is familiar with one form of classification, because patents are currently classified manually *by the Examiners* using the USPTO patent class/subclass system.

While the patent class/subclass system is certainly useful for some situations (e.g., conducting prior art searching), there are many other situations where a different way of categorizing patents is needed. For example, the corporate patent attorney who manages a large portfolio of his company's patents will often need to categorize patents by the products which those patents protect. The US patent class/subclass system is not designed with this type of classification in mind.

While the corporate patent attorney can always attempt to maintain a database of product vs patent, such efforts typically fail because products change, new patents issue, and no one ever seems to have time to go back and update the database.

What is needed is an automated system for categorizing a portfolio of patents. That is what applicants have invented.

The applicants' system is designed to work with the text of the patent claims. By way of illustration, let us say the company manufactures product A and product B. The corporate patent attorney would obtain a first set of example claims covering product A and a separate set of example of claims covering product B. The example claims can be taken from actual patents (or pending patents), or they can simply be drafted as "representative" of the type of claim used for that product.

These sets of example claims are used as training data to construct an eigenspace. This involves constructing data representations of each claim (called constructing "supervectors" in the applicants' specification – see Fig. 6.

After the eigenspace is constructed, each of the sets of example claims (training claims) are represented as points within this eigenspace.

Thereafter, when a new patent document is analyzed, the claims of that patent are obtained and used to construct eigenvectors which are then projected into the eigenspace to see which of the previously represented points the new claim most closely falls. For example, if the new patent's claims fall close to the point in eigenspace represented by product A, then the new patent is classified as belonging to product A.

By way of summary, the applicants' method involves these steps:

Training:

- defining an eigenspace representing a training population of training claims each training claim having associated training text;
- representing at least a portion of each training claim in said eigenspace;

- associating a predefined category with each training claim in said eigenspace

Classifying new claim text (to be analyzed):

- projecting the claim text information to be analyzed into said eigenspace
- associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

THE REJECTION:

The Examiner rejected claims 13-20 under 35 U.S.C. §103(a) as being unpatentable over US 6,038,561 to Snyder et al, in view of US 6,233,575 to Agrawal and further in view of Andrews "Text classification by bootstrapping with keywords EM and Shrinkage." The Examiner recognized at paragraph 7 of the Final Office Action, mailed October 19, 2007, that neither Snyder nor Agrawal use an eigenspace. However, the Examiner cited the Andrew reference as disclosing the use of eigenspace, citing page 1 of the Andrew reference.

In fact, what the Andrew reference discloses is quite a different technique altogether. Andrew uses what they term a "bootstrapping algorithm" that, according to the Andrew reference at page 1 requires no labeled documents at all. The following excerpt from Andrew's Abstract is illustrative:

> When applying text classification to complex tasks, it is tedious and expensive to hand-label the large amounts of training data necessary for good performance. This paper presents an alternative approach to text classification that **requires no labeled documents**; instead, it uses a

small set of keywords per class, a class hierarchy and a large quantity of easily obtained unlabeled documents. The keywords are used to assign approximate labels to the unlabeled documents by matching. These preliminary labels become the starting point for a bootstrapping process that learns a naïve Bayes classifier using Expectation-Maximization and hierarchical shrinkage. [Andrew reference, page 1, Abstract] (emphasis added).

As explained above in connection with the discussion of applicants' invention, applicants are doing quite the opposite of Andrew et al. Applicants are "associating a predefined category with each training claim in said eigenspace"—thus applicants are using labeled documents in the training phase.

Perhaps it is the Examiner's position that the Andrew bootstrapping technique might be used to classify claim text, but Andrew's bootstrapping method is not what applicants are claiming. Applicants are claiming a specific method that involves the precise training and classifying steps that have been explained above, and which are expressly recited in the claims, namely:

- defining an eigenspace representing a training population of training claims each training claim having associated training text;
- representing at least a portion of each training claim in said eigenspace;
- associating a predefined category with each training claim in said eigenspace
- projecting the claim text information to be analyzed into said eigenspace
- associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

APPLICANTS' CLAIMS ARE ALLOWABLE OVER THE REFERENCES

In view of the fact that applicants' claims 13-20 all recite these limitations, which are not so much as even mentioned in the Andrew reference, applicants submit that claims 13-20 are allowable over the art relied upon by the Examiner.

Accordingly it is respectfully submitted that the claims are now in a condition for allowance.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all claims are allowable over the references of record. Reversal of the Examiner's ruling and allowance of this application is therefore courteously solicited

Respectfully submitted,

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VIII. Claims Appendix

1.-10. (Cancelled)

11. A computer-implemented patent portfolio analysis method comprising:

providing user-prescribed categories which were specified by a user;

retrieving a corpus of patent information from a database, wherein the patent information is information from multiple patent documents;

analyzing said patent information to generate a category model corresponding to at least one of said user-prescribed categories; and

applying said model against said patent information to select from said patent information a subset that fits said model and storing said subset in association with a label corresponding to said at least one of said user-prescribed categories in a computer-readable dataset.

12. The method of claim 11 wherein said patent information includes patent classification information and wherein said analyzing step is performed by defining a plurality of categories and mapping classification information onto said categories.

13. The method of claim 11 wherein said patent information includes claim text information to be analyzed and wherein said analyzing step includes:

defining an eigenspace representing a training population of training claims each training claim having associated training text;

representing at least a portion of said training claims in said eigenspace and associating a predefined category with each training claim in said eigenspace; and

projecting the claim text information to be analyzed into said eigenspace and associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

14. A computer-implemented patent portfolio analysis method comprising:

retrieving patent information from a database, wherein the patent information is from a plurality of patent documents;

analyzing said patent information to generate at least one eigenspace category model; and

applying said category model to said patent information to select from said patent information a subset that fits said model and storing said subset in a computer-readable dataset,

wherein said patent information includes claim text information to be analyzed and wherein said analyzing step includes:

defining an eigenspace representing a training population of training claims each training claim having associated training text;

representing at least a portion of said training claims in said eigenspace and associating a predefined category with each training claim in said eigenspace; and

projecting the claim text information to be analyzed into said eigenspace and associating with said projected claim text the predefined category of the training claim to which said projected claim text is closest within the eigenspace.

15. The method of claim 14 wherein said patent information includes patent classification information and wherein said analyzing step is performed by defining a plurality of categories and mapping classification information onto said categories.

16. The method of claim 14 wherein said patent information includes using both patent classification information and linguistic analysis results to define said category model.

17. The method of claim 16 wherein the category model is indicative of technical areas of the patent documents.

18. The method of claim 14 further comprising:

retrieving text of claims from the database, wherein the text of claims are from the plurality of patent documents;

analyzing the text of the claims in order to generate claim breadth metrics for the claims, wherein a claim breadth metric is indicative of claim breadth of a claim,

wherein the claim breadth metrics are used to analyze the claims.

19. The method of claim 14 wherein a label associated with the category model is predetermined.

20. (Currently Amended) The method of claim 14 wherein a label associated with the category model is dynamically determined.

IX. Evidence Appendix

None

X. Related Proceedings Appendix

None